AI in Software Quality Assurance: Glossary

AI Champion	An AI power-user from within a department who inspires others in the company to use AI, helping to increase adoption and collaboration rates.
AI Copilot	An AI assistant designed to help developers and testers with tasks such as auto-generating customized coded test steps, writing code, or optimizing an existing test portfolio. Examples include Microsoft 365 Copilot and UiPath Autopilot.
Agentic AI	An approach where autonomous AI-driven 'agents' make decisions, plan actions, learn from outcomes, and solve problems independently with minimal human interaction. It is goal-oriented, in contrast to traditional automation that follows rigid, predefined scripts.
CRISP Framework	A prompt engineering playbook for guiding Large Language Models (LLMs) to produce more deterministic and reliable results. The acronym stands for Context, Role, Instructions, Specifics, and Prototype (providing a canonical example).
Data Mesh	A socio-technical approach for managing data that decentralizes data ownership and architecture. It is based on four core principles: domain ownership, data as a product, a self-service data platform, and federated computational governance.
Digital Twin	A virtual replica or model of a physical system, process, or environment. In the context of software, it can be used for testing and simulation, often in conjunction with synthetic data.
Expert-in-the-Loop	An evolution of 'human-in-the-loop.' It posits that for AI collaboration to be effective, the human must be a cultivated expert with strong critical thinking and courage, not merely a passive participant.
Generative AI	A category of AI focused on creating new content. In the SDLC, its use cases include code generation, auto-completion of code, dynamic creation of test cases from requirements, and generation of synthetic test data.
Human-in-the-Loop	A model where human experts are essential for controlling, validating, and guiding the outputs generated by AI systems, ensuring quality and trust.
Multimodal AI	An AI system that can simultaneously process and interpret information from multiple data types, such as text, images, audio, and video.
Plan Continuation Bias	A cognitive bias where individuals or teams continue to follow an established plan even when it is clearly failing or circumstances have changed, often leading to disastrous outcomes. It is also referred to as 'press-on-itis' in aviation.
Quality Intelligence	A class of AI-augmented technology that pinpoints the impact of code changes and associated risks upfront. It is used to focus and shrink test suites by prioritizing only the necessary tests, thereby cutting test cycle time and costs.
Self-Healing Automation	An AI-driven capability where the system automatically detects changes in an application's UI, API, or code and updates the corresponding test scripts to prevent them from breaking. This significantly reduces test maintenance efforts.
Synthetic Data Generation	The use of AI models to create vast amounts of artificial data that closely resembles real-world data. This is useful for testing in situations where real data is scarce or has privacy concerns.